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## Description

### A Capsule incorporating a Doser and Openable Security Cap, in particular for Single-dose Flavons.

#### Technical Field

The invention relates to the field of single-dose flavons, in particular prevalently used for containing soft drinks.

#### Background Art

For some time now there has been a large market demand for mostly water-based  
5 drinks containing aromas, energy-enhancing substances, mineral integrators and  
other substances whose main aim to give the drink an especially pleasant taste  
plus special benefits, such as extra energy, mineral salt replacements and so on,  
all of which are considered beneficial to the human organism. These drinks are  
often presented to the public in single-dose containers, so that once the flavon is  
10 open the contents are immediately consumed and as a result no re-closure device  
is necessary. The following makes reference to this type of drink, though it is true  
that the same modus operandi is used for some medicinal products.

PCT application WO 03/093128, and WO 98/38104, both by the same applicant,  
teach preparation of the drinks immediately before use by insertion into water  
15 provided in one container (usually a plastic flavon) of the desired substances  
provided in special capsules, such as the ones described, for example, in the  
above-cited applications.

The capsules used for this purpose guarantee the flavon's security but exhibit the  
problem of having an opening system that is slightly complex and awkward, in

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particular if it is necessary to use both hands for the least possible time, as some people do, such as runners or cyclists who drink these beverages during their sporting activity. To open these containers it is necessary to grip the flagon and screw the cap with a certain force in order to break the security strip, and press  
5 the device containing the product in order to lacerate the capsule and cause the product to fall into the underlying liquid. Only at this point can the capsule be unscrewed easily in order to gain access to the contents of the flagon.

The main aim of the present invention is to realise a capsule which, apart from offering the same degree of security to evidence prior opening of the flagon and  
10 the same system to produce the drink immediately before consumption, also enables the opening operations to be carried out simply and rapidly.

A further aim is to provide a capsule whose opening, with respect to prior-art capsules, is more modern and pleasant for the user.

A further aim of the invention is to provide a relatively simply-constructed  
15 capsule.

### **Disclosure of Invention**

Further characteristics and advantages of the present invention will better emerge from the detailed description that follows of a preferred embodiment of the capsule of the invention, illustrated purely by way of non-limiting example in the  
20 accompanying figures of the drawings, in which:

figure 1 is an enlarged-scale section in vertical elevation of the capsule of the invention, inserted onto a flagon and with the upper part closed;

figure 2 shows the capsule of the invention, partially sectioned and inserted on a flagon, with the upper part opened.

25 In the figures of the drawings, 1 denotes a flagon having a mouth, located at an end of the neck 2, which is closed by a capsule 3 according to the invention.

The capsule 3 comprises a lower part 4 exhibiting an internal threading 7a, by

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means of which the lower part 4 can be screwed onto a thread 7 afforded on the neck 2 of the flagon 1. A security strip 12 is provided on the lower part 4 of the capsule 3, which when the capsule 3 is unscrewed detaches therefrom and indicates that the flagon 1 has been opened for the first time. The security strip 12 in the embodiment is a ring, connected to the lower part 4 of the capsule 3 by means of easy-break ribs, which engages against an annular projection on the neck 2 of the flagon 1 and detaches from the capsule 3 when the lower part 4 thereof lifts following unscrewing. The strip 12, the function of which is entirely similar to those of other strips used for numerous types of capsules for flagons, can however be made differently to what is described above.

The lower part 4 of the capsule 3 is superiorly open towards the outside, and is superiorly closed by an upper part 5 of the capsule 3. The lower part 4 and the upper part 5 have a circular section and are connected to one another along external perimeter circumferences thereof, by an easy-break ribbing 13.

In substance, the upper part 5 and the lower part 4, generally made in a single piece, constitute the whole capsule 3 and before reciprocal detachment are integral, thus guaranteeing the security of the closure of the flagon. Differently to prior art capsules, where there is no possibility of removing the upper part of the capsule, the upper 5 and lower 4 parts are easily detachable from one another, as they are united only by an easy-break ribbing 13.

A recess 4a is provided to facilitate the detachment, the recess 4a being afforded in the lower part 4 of the capsule 3; another recess 5a is afforded in the upper part 5 of the capsule 3, and the two recesses 4a and 5a are arranged, when the capsule 3 is closed, i.e. when the upper part 5 is above the lower part 4, in such a way as to be facing each other and together to create an indentation 6 which is shaped like a human finger-tip. The user, by inserting a finger-tip into this indentation 6 (using a finger of the same hand that is holding the flagon) and pushing

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upwards, easily breaks the easy-break ribbing 13 and detaches the upper part 5 of the capsule 3 from the lower part 4 .

A reservoir 8 is located internally of the capsule 3 and has a breakable bottom 8a. A cutting element 9 is included internally of the reservoir 8, and the reservoir 8 is inserted sealedly in the neck 2 of the flagon 1.

The substance to be dissolved in the drink (this will be better explained herein below) is contained internally of the reservoir 8, or internally of the cutting element 9 should the latter be hollow (as illustrated in figure 1) and occupying the internal space in the reservoir 8. The substance has the function of dissolving in the water contained in the flagon to prepare the drink, and will therefore preferably be soluble in water and will include all of the desired ingredients for making the final drink.

Means for coupling are included, which solidly couple the reservoir 8 and the lower part 4 of the capsule 3 in an upwards axial translation. The coupling means comprise an external ring 16, which is solidly constrained to the reservoir 8 and fashioned on an upper external part thereof. The coupling means exhibit a hook-shaped section, with the hooked part facing downwards; an internal annular projection 17 is also afforded on the internal surface of the lower part 4 of the capsule 3. When the capsule 3 is screwed on the neck 2 of the flagon 1, the projection 17 inserts below the ring 16 and makes the reservoir 8 and the lower part 4 of the capsule 3 solid in upwards translation.

When the capsule 3 is assembled, the cutting element 9 projects superiorly from the lower part 4 of the capsule 3 and the projecting part of the cutting element 9 is contained internally of the upper part 5 of the capsule 3. When the two parts 4 and 5 of the capsule 3 detach from one another, the upper part of the cutting element 9 projects and the user, using the same fingertip that broke the easy-break ribbing 13, can push the cutting element 9 downwards and cause the

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rupturing of the breakable bottom 8a and the descent of the substance contained in the reservoir into the flagon 1. The reservoir 8 containing the substances, the cutting element 9, their conformation and mode of use are all known.

The described capsule is preferably used on single-dose flagons 1, usually small  
5 (a few decilitres) and made of plastic. This is because it is usually this size of container which is used for the one-hand type opening; but the capsule could be used on any type of flagon, bottle or other container having a neck.

When the drink is prepared for drinking, the flagon 1 is gripped with one hand, a fingertip of the same hand (usually the thumb) is inserted into the indentation  
10 6 and with a slight upwards pressure the easy-break ribbing 13 is fractured and removed, or the upper part 5 of the capsule is raised if the detachment from the lower part 4 is not complete.

Using the same thumb or finger, the part of the cutting element 9 projecting from the lower part 4 is pressed, forcing the cutting element 9 to lower and rupture the  
15 breakable bottom 8a of the reservoir 8 and causing the substance in the reservoir 8 to fall into the flagon.

Then, by unscrewing the lower part 4 of the capsule 3 from the neck 2 of the flagon 1, a swift operation requiring very little time and which with a little practice can be done using two fingers of the same hand (e.g. thumb and  
20 forefinger) holding the flagon 1, the security strip 12 is detached and the reservoir 8 and cutting element 9 raised, with a consequent opening of the flagon 1 to afford access to the contents thereof.

Thus, with this single-piece capsule, apart from having a double security that neither the flagon nor the reservoir have been accessed before the capsule itself  
25 is opened, using one hand alone (the hand holding the flagon) the contents can be mixed and drunk very easily, a great advantage especially for some categories of consumers.

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The capsule can be used for the preparation of various types of drink, and with flacons of various sizes. Obviously herein reference is made to a smaller type of flagon due to the fact that the capsule cannot be reclosed and also because one-handed opening is possible only if the container is not heavy.